DOCUMENT RESUME

ED 022 012 VT 004 714

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CONCEPTUAL ISSUES IN EVALUATING TRAINING PROGRAMS. REPRINT NO. 2507.

Wisconsin Univ., Madison. Center for Studies in Vocational and Technical Education.
Pub Date Oct 66
Note- 8p.; Reprint
Journal Cit- Monthly Labor Review; v89 n10 p1091-97 Oct 1966
EDRS Price MF- $0.25 HC- $0.40
Descriptors- COST EFFECTIVENESS, *EDUCATIONAL OBJECTIVES, EDUCATIONAL PROGRAMS, EMPLOYMENT EXPERIENCE, EMPLOYMENT LEVEL, EVALUATION TECHNIQUES, *GUIDELINES, INCOME, MANPOWER DEVELOPMENT, *PROGRAM EVALUATION, *VOCATIONAL EDUCATION
Identifiers- Manpower Development and Training Act Programs, MDTA Programs

The specification of framework for evaluation of training programs should include a statement of program objectives allowing considerations relative to the total context within which the program operates and providing a sound basis for evaluating program outputs. Principal objectives of manpower training programs include increased rate of pay, decreased average unemployment, and greater lifetime employment stability. These objectives imply assumptions relative to the "no training program condition" and may not include a consideration of any other parties and factors involved. If the program affects only the trainee, or if other effects are disregarded, a comparison of individuals' income and employment experience with and without training would suffice. Evaluation relative to employment level must consider aggregate unemployment and how the effects here enter into the evaluation process. Other considerations which must be made are the effects on third parties such as nontrainees, the distributional effects by groups and regions, and the time dimension of benefits and costs using proper discount rates for various circumstances. (EM)

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THE UNIVERSITY OF WISCONSIN

CENTER FOR STUDIES IN VOCATIONAL AND TECHNICAL EDUCATION

Conceptual Issues in Evaluating Training Programs

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Reprinted from
Monthly Labor Review
October 1966 (vol 89, no 10)

INDUSTRIAL RELATIONS RESEARCH INSTITUTE

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Conceptual Issues in Evaluating Training Programs

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TRAINING PROGRAMS, like other objects of public or private spending, ordinarily involve both benefits (advantages) and costs (disadvantages). This article discusses the forms of such effects in the manpower training area, and presents some suggestions regarding measurement methods. The need to evaluate training programs in terms of their effects on efficiency of resource allocation and on the distribution of income is underscored.

Program Objectives and Outputs

The consequences of a training program are not necessarily synonymous with its benefits, because a program may produce negative effects, too. Whether any such undesirable effects are regarded as negative benefits or as positive costs is of no consequence; what is important is that they not be disregarded. Nor should estimates of their magnitudes be lumped together with other costs or benefits and presented in some net fashion. The framework for evaluating training programs should be one that directs the analyst's attention to all of the disadvantages as well as the advantages of the program.

Specifying such a framework involves stating the objectives of the program. This performs two functions. First, by making the objectives explicit it facilitates consideration of their appropriateness, particularly in the light of other activities (and possibly conflicting objectives) of other Government agencies, as well as private decisionmakers. Second, only by reference to a program's objectives can success be judged. That is, the outputs of a program are in terms of the degree of realization of its objectives, although questions may be raised as to whether the objectives are specified soundly.

The principal objectives of manpower training programs may be stated in such terms as increased rates of pay, decreased average unemployment, and greater employment stability for the trainees over their working lifetimes,[1] or in briefer form as "increased income" and "decreased unemployment." Such a statement of goals presents two important analytic difficulties, which are discussed in more detail below.

1. The terms "increased," "decreased," and "greater" presumably refer to comparisons with the incomes and employment records that would have been experienced in the absence of the training program. However, a number of assumptions are required before we can discuss, even at the conceptual level, what would have happened to the trainees if there had been no training program.

2. If goals are stated with reference only to trainees, effects on other parties—both favorable and unfavorable effects—tend to be neglected. Hopefully, the training program would benefit trainees without producing unfavorable effects for others; but it is necessary to decide what weight should be attached to any benefits or disbenefits that the training program produces for third parties.

Benefits to Trainees

If a training program affected no one except trainees (or if effects on others were disregarded), evaluation of a training program would involve comparing the given individuals' income and em-

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[1] Another related objective of training programs involves psychological consideration such as raising the confidence and self-esteem of the trainee and his family. It is likely that the achievement of this goal is highly and positively correlated with the achievement of the income and unemployment goals. Those persons for whom training has had the most favorable effects on income and unemployment are most likely to have their confidence buoyed; those for whom the training has not brought favorable effects may well be depressed and frustrated.

From the Monthly Labor Review, October 1966
Reprint No. 2507

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

ployment experience with and without the training program—other things being equal. This is not equivalent to comparing their experience before and after the training program. "Before and after" data are easier to obtain, but they should be used cautiously, bearing in mind that their validity depends on how good a proxy they are for the conceptually superior "with-without" data.

Nor is comparing the given individuals' experience with and without training equivalent, conceptually, to comparing the experience of different people, some of whom have had training programs and some of whom have not. The two groups may differ in important respects which influence their incomes and employment status. For example, insofar as a self-selection process operates, those persons who apply for, participate in, and complete [2] training programs may be among the more ambitious and able persons. If they are (and this should be investigated) they would have had better overall employment experience than their generally less ambitious or less able counterparts who did not participate in such a training program—even if neither group had obtained training. Unless these differences are taken into account in the design of experiments for evaluating training programs, the benefits to trainees from the training programs will be overestimated.

When employment—and income—experience for different people some of whom have had, and some of whom have not had training are compared, no recognition is given to the budgetary effects of the programs and the alternative uses to which training resources could be put if training programs were not conducted. The point is that if training programs were cut back, the impact on prospective trainees would depend on what was done with the resources that were liberated. Or, to put it differently and more broadly, when the benefits of training programs are being investigated under the assumption that other things are equal, precisely what are these "other things"?

In the absence of expenditures for a training program, would taxes be reduced accordingly? If so, private disposable income and hence private demand would tend to rise and some expansion in job opportunities would develop, thus helping to offset the effects of lessened availability of training programs. To what extent such an expansion would help the prospective trainees, as distinguished from other people, is a factual question, the answer to which depends in part on the form taken by the tax reduction.

Or, in the absence of expenditures for a training program, would other Government expenditures be increased? If so, to what extent would the increases lead to enhanced incomes and improved employment stability for the same people who would have been aided by training programs? Alternative expenditure programs such as those that augment geographic mobility of labor or improve employment services by matching workers with jobs will have different consequences for prospectives trainees than would additional expenditures on, say, scientific research.

Useful analysis of what the income and employment experience of prospective trainees would have been if training programs were not available depends on assumptions about Government tax and expenditure policy. In addition, it depends on assumptions about private responses of prospective trainees to a situation in which governmentally subsidized training programs were not available. Were there no such training program, would these individuals migrate to areas having better opportunities? Would they redouble efforts to find employment, making greater use of public and private job-placement opportunities? Would they obtain privately financed training?

Thus, if one wishes to evaluate the benefits of a training program there is no analytically valid way to avoid making assumptions about what would have happened to the trainees if the program had not been available to them. If the assumptions are not made explicit, they are implicit in the analyst's thinking. Unless they are brought out, however, their possible questionable nature may never be recognized. And, depending on what these assumptions are, the estimated effects of a training program may vary greatly. Emphasis should be placed on (1) making assumptions or judgments that are plausible about these matters and stating them explicitly, thereby exposing them to critical appraisal, and (2) tracing the consequences of each of several sets of alternative assumptions.

[2] With regard to dropouts from training programs, a distinction needs to be made between those who leave to accept a job and those who leave for other reasons such as lack of interest.

Employment Level

As suggested above, one of the vital assumptions underlying any analysis of benefits from training programs involves the level of aggregate employment in the economy. Specifically, is the level of employment impounded in the assumption that "other things are equal"? If it is, then any improvement in employment experience of trainees would be at the expense of nontrainees (although aggregate real income in the economy could rise in response to increased marginal labor productivity, even if aggregate employment did not).

Alternatively, if the level of employment is regarded as a variable, subject to change through training programs, then two important and analytically separable questions emerge: Do manpower training programs reduce the level of aggregate unemployment in the economy? If they do, then how should this information enter into an investigation of benefits from training programs?

Let us consider each question in turn. First, do training programs cut unemployment? A manpower training program may reduce unemployment through the employment-stimulating effects of the demand for inputs to the program, and through the skill-developing effects of the supply of outputs from the program. The former involves the consequences of expanding demand for labor, whereas the latter involves the consequences of increasing the productivity of certain workers and thereby augmenting the supply of labor with higher level skills. It is, of course, a factual matter as to how much unemployment would be decreased and incomes increased by a training program through either of these routes. But the separation of these two types of employment effects is of considerable importance at both the analytic and the empirical level.

Second, how should employment effects enter an analysis of benefits from training programs? Every expenditure program adds to total demand, and thereby to employment and income. Thus, with respect to the employment (and income) effects of expenditures on training programs, the question of whether these programs do reduce unemployment (and increase incomes) is ambiguous—reduce it compared with what? If we assume that the budgetary alternative to a training program is either additional government spending on some other program, or tax reduction with approximately equivalent increases in private demand, then expenditures on training programs provide benefits in the forms of additional employment only insofar as they produce larger employment effects than would the alternative public or private expenditures they displace. Thus, if training programs used more (less) low-income, chronically unemployed labor than these alternative expenditures would use, the extra income received by the workers could be counted as a benefit (disbenefit) from training programs.[3] (The question of whether any of the benefits to one group of workers come at the expense of another group remains open.) The total employment and income accompanying training programs, as distinguished from the extra amounts, should be counted as benefits attributable to the programs only if there were no alternative expenditures—that is, only if other government and private demand for labor would be unchanged in the event that expenditures on training programs were reduced.

It is most plausible to assume that total demand for labor would be the same—although the skill composition and geographical distribution might differ—whether or not expenditures were made on a training program. The reason is that in the absence of the training program the level of government expenditures on other programs or the level of private demand is likely to be greater. In general, therefore, the presumption—subject to further investigation—is that changes in employment and income resulting from the aggregate-demand effects of spending on training programs should not be counted among the benefits from such programs.

By contrast, any employment and income effects resulting from the outputs of training programs—more productive workers—are relevant for the evaluation of benefits from such programs and for comparison with the benefits from alternative expenditure programs. The point is that program evaluation may be best understood in the context of a quest for efficiency in the allocation of re-

[3] In the absence of additional information about the size and type of labor demands that would be generated by these alternative expenditures, we might assume that the demands would be the same as the average demands generated in the economy as a whole. Data developed for interindustry input-output tables could be of assistance.

sources among competing uses. Any consequences that are common to all alternatives are irrelevant as guides to efficient resource allocation. But if a training program turns out workers with increased productivity who are unemployed less than they would be otherwise, and are more productive when employed, then these extra employment and productivity effects should be counted among the benefits (output) of the program.

The problem of deciding what the trainees' employment and income experience would otherwise have been is a severe one. Graduates of training programs may indeed find employment "promptly," but how long would they have been unemployed if they had not participated in the training program, and what earnings would they have received?

In this connection is it important to consider the relationship between the apparent success of a training program and changes in the level of employment in the economy, when the changes result from factors other than the training program? Obviously, and without making extreme assumptions about the underlying determinants of total unemployment, the more rapidly the demand for output is rising, the more quickly will graduates of training programs obtain employment. But, also, the more quickly the demand for output is rising the more rapidly will nontrainees find employment. In short, caution must be exercised in attributing to training programs those employment and income benefits that are ascribable to other factors—in particular, to independent changes in the level of employment. Benefits from training programs are only those favorable consequences that would not have occurred in the absence of such programs—that is, would not have occurred under the assumption that the level of total demand for output would be the same whether or not the training programs existed.

Empirical evaluations of training programs are often complicated by the effects of changing levels of total demand during training periods. Unless the analyst is careful, his evaluation will tend to show—erroneously—that training programs work very poorly during cyclical downturns but work wondrously during cyclical expansions. Unless these exogenous cyclical effects ("exogenous" in the sense that they are causally independent of training programs) are isolated in the analysis, training programs will be blamed for a fall of total demand, and credited for a rise. To be sure, training programs might well be differentially effective at low and at high, at falling, and at rising levels of unemployment, but in the benefit evaluation process the level and rate of change of unemployment that should be used as standards for comparison are those that would have existed (for the particular workers) in the absence of the training—not the level that did exist prior to commencement of the program. The shorter the duration of the program the smaller the relevance of this point, but during a period of rapidly changing economic conditions even a few months can bring marked changes in the demand for persons with the skills developed in the training programs, as well as marked changes in the demand for persons with the abilities possessed by the trainees prior to their enrollment.

Empirical Approaches

Some meaningful and operationally feasible data on the employment and income effects of training programs could be obtained by designing controlled experiments such that some randomly selected members of a well-defined group were provided training while others were not. Their subsequent experience could be compared and statistical conclusions drawn within stated confidence limits.[4] Since only the differences in experience of the groups would be relevant, this procedure would be relatively (although not entirely) insensitive to cyclical changes in aggregate employment. This experimental approach would assume implicitly, and perhaps plausibly, that the budgetary alternative to training programs would be additional public or private spending that would have produced the following results: If trainees had not participated in training programs and these alternative expenditures had been made, trainees would have had the same employment and income experience that the present nontrainee control group has had.

[4] Numerous variants of this approach would be useful to try, and seem feasible; not only might one group be provided training while another was not, but the effectiveness of alternative forms of training could be compared. In addition, the importance of various components of current training programs could be studied by varying the extent of guidance counseling, vocational training, employment services, etc., provided to different groups of trainees.

On a less ambitious level, some evidence on expected durations of unemployment might be obtained by constructing frequency distributions of duration of additional unemployment for persons (with specified characteristics) who have already been unemployed for particular lengths of time. For example, among white male high school dropouts aged 25–34 who have been unemployed for x weeks (where x takes on alternative values), various fractions remain unemployed after $x+1, x+2, x+n$ weeks. This information would be a useful baseline against which the unemployment experience of similar people (similar in their abilities and ambition, too) who have completed a training program might be compared.

Development of conditional distribution of duration of unemployment would have another valuable effect. Such distributions might well indicate that the probability is not zero that trainees would have obtained employment sometime within the training period. If so, foregone earnings among trainees would not be zero. Foregone earnings would, thus, be one form of program cost that is borne by the trainee, although it might be offset by cash payments made by government to trainees as part of the total training program.

Determination of what the levels of income and employment for certain groups of trainees would otherwise have been is not an easy task. Nevertheless, if the analyst knows which variables are conceptually relevant, he is more likely to produce meaningful results than if he does not know—even though his empirical work must inevitably compromise with theoretical purity.

Third Party Effects

Much of the previous discussion of conceptual issues and empirical aspects of employment and income effects assumed that benefits to trainees reflected increases in total employment and output, not simply redistributions in favor of trainees and against others. In practice, it is generally difficult to discover whether such an assumption is valid. To what extent does unemployment rise among nontrainees, offsetting at least partially any drop in unemployment among trainees? Such a factual question requires investigation to determine its quantitative significance. However, the mere recognition that this question needs to be posed already represents a step forward, for it diminishes the likelihood that training program benefits will be exaggerated by failure to consider adverse effects on outsiders.

In smoothly functioning markets there would be no offsetting unemployment, although there would be a tendency for some wage rates to fall and others to rise in response to the augmented supply of more skilled labor and the diminished supply of less skilled labor. However, in smoothly functioning markets there would presumably be no long-term unemployment to begin with, since wage rates would fall to levels at which chronic unemployment disappeared. Since chronic unemployment does exist, it is clear that the markets are not working perfectly, and so the possibility that trainees might displace other workers cannot be dismissed.

Once more, however, we find that the extent of any displacement effect depends on the level of total demand in the economy, as well as on the degree of imperfection in the market.

There is legitimate room for scepticism about the likelihood that training programs alone can substantially reduce total unemployment. For maximum effectiveness it may be true that training programs should be carried out in a context of measures to enlarge total demand for labor, not only to shift supplies, as training programs do. However, this is conjecture. Neither the facts nor the underlying issues on which an analysis of this conjecture rests are clearly understood. If demand for labor is expanding, it is difficult to distinguish the effects of training programs from the effects of expanding demands—although the controlled experiment approach would seem to be promising here, too.

While it is important to remember that benefits to trainees and their families may come, at least partially, at the expense of third party nontrainees, the contrary case should not be overlooked: training of additional workers with relatively scarce skills could break resource bottlenecks, thereby expanding employment, productivity, and income among other workers. Thus, ideally, the process of evaluating training programs should include consideration of benefits as well as disbenefits to nontrainees.

Distributional Effects

The discussion of third party benefits and disbenefits is related closely to the issue of the distribution of benefits, of costs, and, hence, of net benefits from training programs.

Let us assume, bearing in mind the caveats discussed above, and surmounting thorny measurement problems, that the aggregate benefits and costs of a training program have been estimated at $1,000 and $900, respectively. That program would be considered economically efficient, as the term is conventionally used, for the benefits exceed costs. If benefits and costs were estimated in usual ways, their magnitudes would be independent of precisely which people reaped the benefits and which bore the costs. That is, a dollar of additional income or cost would be counted as a dollar, regardless of who received the income or paid the cost. As economists we have been unable to estimate benefits and costs differently depending on whom they fall upon. Thus, formal theorizing by economists has separated distributional effects of programs from their efficiency effects, and has concentrated on the latter.

This separation is valuable for analysis. However, especially when the evaluation is of programs that are explicitly intended to help certain groups of people—and manpower training programs are of this type—the analyst should not be satisfied with investigation of program efficiency alone. Distributional effects are also an important consideration. In addition to the evidence on economic efficiency, evaluation of training programs should include presentation of information about the specific groups that receive benefits and bear costs. For example, it would be worthwhile to know how much of the benefits from any particular training program went to persons with various levels of incomes in prior years; how much went to persons who had been unemployed for various lengths of time; how much went to members of various minority groups, age groups, regions of the country, and so forth.[5] Distributions by cross-classifications of these characteristics would be desirable.

The distribution of program costs is also relevant conceptually, as a determinant of the distribution of net program benefits (benefits minus costs). To what extent are the costs borne by the program's beneficiaries, and to what extent by others? It has already been noted that participants in training programs may bear some gross cost in the form of foregone earnings, under the assumption that not all trainees would otherwise have been unemployed throughout the period of their training. However, if cash allowances are given to trainees there may be no net cost to them whatsoever. In fact, if the allowances exceed expected foregone earnings, the difference would be an additional net benefit to trainees.

A byproduct effect of a successful training program is to produce another type of distributional effect—a diminution of relief rolls and unemployment claims, with a corresponding decrease in burdens on taxpayers. Of course, the savings to taxpayers are also losses to the erstwhile recipients. Thus, such income redistributions through reduced transfer payments should not be added to real benefits in the form of increased production, as measured by additional earnings. However, the presence of redistributional consequences of training programs should be noted, separately, as part of a complete program evaluation.

The Time Pattern

The possibility that trainees might receive net benefits even while they participate in training programs—for example, through allowances—points up another dimension of the evaluation process: the timing of benefits and costs. Costs of training programs, including any foregone-earnings costs to trainees, are normally incurred in the concentrated period of the training course. Benefits, by contrast, are typically realized over many years of post-training employment (although benefits in the form of transfer payments may be realized while training is in progress). Because of this time pattern, the program evaluation process must attempt the difficult task of forecasting the employment and income effects of the training over the several decades of future work life. When, and to the extent this is accomplished, the program evaluation process must then utilize a discount factor for the purpose of comparing the importance of additional income received in various

[5] It would also be useful to know how much of the inputs were devoted to helping each group, but this is another matter.

future years. The discounting process is dependent on the choice of a discount rate for reducing future benefits to equivalent present values. Since the process is such that the lower the discount rate used, the larger is the present value of any given benefit stream, the choice of the discount rate may itself determine whether the present value of any given stream of benefits exceeds or falls short of the present value of costs, and thus whether the program is or is not efficient. There is only limited agreement among economists, even at the conceptual level, regarding what is an appropriate discount rate to use under what circumstances. Nevertheless, there does seem to be consensus that the interest rate on long-term government securities is not an appropriate rate conceptually, and that it is, as a practical matter, too low a rate.

One procedure that might be adopted involves making and presenting the results of computations with each of two alternative discount rates, thereby showing the sensitivity of results to the discount rate chosen. This approach has much to commend it. For one thing, by making the rate(s) explicit it focuses attention on the issue of which rate should be used. For another, in some cases the benefits will exceed costs, or vice versa, regardless of which of the alternative rates is used. Under such circumstances the choice of a discount rate ceases to be an issue. Specifically, rates of 5 and 10 percent are useful alternatives, since they are near the bottom and the top of the range suggested by theoretical considerations.

In summary, evaluation techniques are more likely to be useful if they are developed in recognition of the theoretical ideals. Under those conditions the strengths and limitations of empirical techniques will be recognized. In the course of time, actual evaluation techniques will more rapidly approach theoretical norms if those norms have been identified than if they have not.